

CLAIMS:

1. A method for selecting a mutant miniature plant having a desired trait, comprising the steps of:
  - (a) providing a population of miniature plants, wherein said miniature plants have the following characteristics: (i) reduced size in comparison to a commercial plant of the same species; (ii) maturation to produce viable seeds or tubers at a plant density of at least ten-fold higher than standard growth conditions used for a commercial plant of the same species; and (iii) capable of being crossed with a commercial plant of the same species;
  - (b) generating mutant miniature plants in said miniature plant population by treating said miniature plants with a mutation-inducing agent to produce a mutagenized miniature plant population; and
  - (c) selecting a mutant miniature plant having said desired trait within said mutagenized miniature plant population.
2. The method of claim 1, wherein said population of miniature plants is generated by natural or induced mutation, by genetic engineering, or by treatment with plant growth factors.
3. The method of claim 1, wherein said mutation-inducing agent in step (b) is a mobile DNA sequence which is selected from the group consisting of a T-DNA and a transposable element.
4. The method of claim 3, wherein said transposable element is selected from the group consisting of an autonomous transposon, a non-autonomous transposon, and an autonomous/non-autonomous transposon system.

5. The method according to claim 4, wherein said transposable element is the maize Ac/Ds transposable element.

6. A mutant miniature plant population wherein a miniature plant of said population has the following characteristics: (i) reduced size in comparison to a commercial plant of the same species; (ii) matures to produce viable seeds or tubers at a density of at least ten-fold higher than standard growth conditions used for a commercial plant of the same species; (iii) capable of being crossed with a commercial plant of the same species; and (iv) carries a mutation induced by an agent selected from the group consisting of a chemical mutagen, irradiation, and a mobile DNA sequence.

7. The mutant miniature plant population of claim 6, wherein said commercial plant of the same species is used to produce food, fiber or flowers.

8. The mutant miniature plant population of claim 15, wherein said commercial plant of the same species is a plant which produces a berry-type fruit or a plant of the Solanaceae family.

9. The mutant miniature plant population of claim 8, wherein said commercial plant produces a berry-type fruit selected from tomato, grape, prune, eggplant citrus fruits, apple.

10. A method for producing a mutant population of a miniature plant comprising the steps of:

- (a) providing a population of miniature plants, wherein said miniature plants have the following characteristics: (i) reduced size in comparison to a commercial plant of the same species; (ii) maturation to produce viable seeds or tubers at a plant density of at least ten-fold higher than standard growth conditions used for a commercial plant of the same species; and (iii) capable of being crossed with a commercial plant of the same species; and
- (b) generating mutant plants in said miniature plant population by treating said plants with a mutation-inducing agent to produce said mutant population of said miniature crop plant cultivar.

11. The method of claim 10, wherein said population of miniature plants is generated by natural or induced mutation, by genetic engineering, or by treatment with plant growth factors.

12. The method of claim 10, wherein said mutation-inducing agent in step (b) is a mobile DNA sequence selected from the group consisting of a T-DNA or a transposable element.

13. The method of claim 12, wherein said mutation-inducing agent is a T-DNA and said miniature plants are infected with *Agrobacterium*, thus producing multiple transformants wherein each transformant contains a T-DNA insertion in a different genomic position.

14. The method of claim 12, wherein said mutation-inducing agent is a transposon and the mutant miniature plant population is obtained from the progeny of miniature plants containing an active transposition system.

15. The method of claim 14, wherein said active transposition system is a plant native transposon or a transposon introduced into the plant by genetic engineering techniques.

16. The method of claim 15, wherein said active transposition system is selected from an autonomous transposon, and a transposable element obtained by crossing a plant containing a non-autonomous transposon with either a transposase source or with a plant containing an autonomous transposon.

17. The method according to claim 15, wherein said transposable element comprises the maize AC/Ds transposon system.